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Model intercomparison of African carbon balance using a new 28 year climate dataset

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Studies of the African contribution on the global carbon budget have shown almost no influence on decadal-scale. Still the carbon balance of Africa is highly variable in time, mainly represented by droughts and savannah fire emissions, and most likely to change under climate change scenarios (Williams et al. 2007). Here we present results from the CarboAfrica model intercomparison (CAMIC) at continental scale to enhance the understanding of the African role in the global carbon cycle. CAMIC provides a baseline data set of modeled seasonal and interannual variability and associated climate sensitivity of ecosystem-atmosphere CO2 and water exchange. The model intercomparison is based on a newly established state of the art input climate dataset, constructed by combining global observation-based datasets with the NCEP-DOE Reanalysis 2 in order to correct reanalysis data for known biases. The climate dataset will be introduced and validation results shown. We than compare the participating terrestrial ecosystem models (ORCHIDEE, LPJ-C, LPJ-GUESS, JULES) with respect to their interannual and seasonal carbon fluxes on behalf of continental patterns and major biomes. Preliminary results reveal that all models simulate reasonably well large interannual variability of Net ecosystem Production (NEP) for savannah regions and lowest in tropical evergreen rainforest. Despite this fact, large seasonal variability

of NEP occurs during the dry season of tropical evergreen forest. Differences between the estimates of each model relate to their specific model parameterization.